NCDOT UAS Integration

Basil Yap, UAS Program Manager
Division of Aviation

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UAS Program Office Role

Regulatory

Permitting commercial N.C. UAS operators

Education

Safety, opportunity

Research

Technology benefiting state

Flight Services

NCDOT, other state agencies, local governments

Government Agency Integration

UAS program development and support

NCDOT Utilization

- **Division 1** (2) – Project monitoring and inspection, storm assessment

- **Division 8** (1) – Project monitoring and inspection

- **Division of Aviation** (10) research, training, airport inspections, operations for other units

- **Communications** (2) capture video and photographs of NCDOT events and projects throughout the state.

- **Photogrammetry** (1) focused on developing photogrammetry standards for UAS.

- **Roadside Environmental** (1) photograph jobsite erosion control measures and document the wildflower program.

- **Geotechnical Unit** (1) respond to landslides in the western part of the state.

- **Environmental Analysis Unit** (2) apply herbicide to invasive species on the coast.

- **Safety & Risk Management** (1) safety assessment of construction sites.

NCDOT UAS Fleet

DJI Inspire 2

Yuneec Q500

DJI Phantom 4

sensFly eBee

DJI Matrice 200

DJI Matrice 210

Construction Site Monitoring

- Project Documentation
- Project Inspection/Monitoring
  - Erosion Control Measures
  - Bridge Pours
  - Traffic Control
- Photos and Videos uploaded to cloud (OneDrive or Sharepoint)

Division 1 – Storm Damage Assessments

NCDOT UAS Integration

- UAS Working Group
- Department UAS Policy
- Training and Certification
- Platform Selection
- Recurrent Flight Training
- Additional Waivers and Authorizations
- Fleet Management
- Coordinated Emergency Response
- Maintenance and Repair
- Contracted Services
- To keep updated, click here

Role of Division of Aviation: Facilitate the safe integration of drones within the Department

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Hurricane Florence Response

- NCDOT Led 15 UAS Teams
- Over 250 missions flown
- Over 8,000 videos/photos uploaded to statewide map
- Over 45 live streaming events
- >515 Gigabytes of Video and Photo taken
- Coordinated response with zero incidents
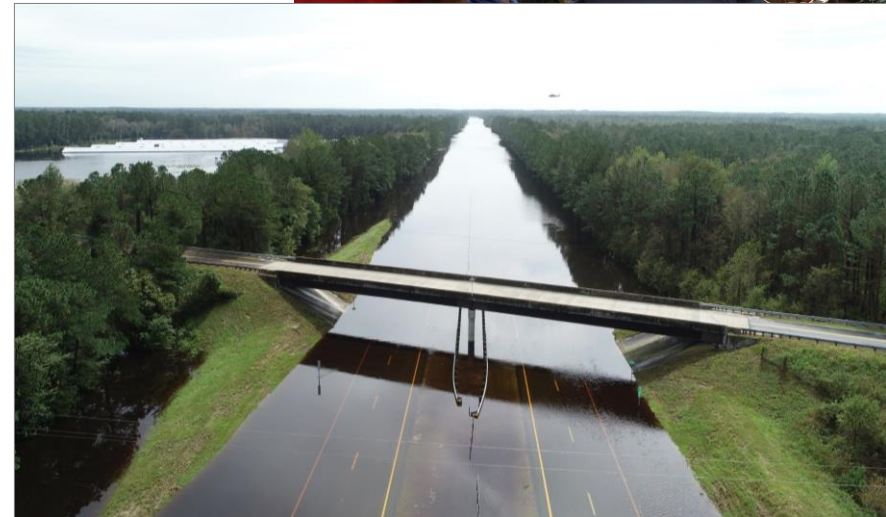
NCDOT UAS Response Video

https://vimeo.com/ncdotuas/review/295899126/65d2f5591b

This Isn't a River, It's a Highway

Interstate 40 is looking more like a river than a road. The North Carolina Department of Transportation published this drone video captured Monday of Insterstate 40, as part of... **See More**

US 421 into Wilmington

on 9/21/18

on 9/20/18

US 421 into Wilmington on 9/21/18

US 421 - Monitoring

US 70 & US 258 in Kinston on 9-21-18

Live Streaming Video for Traffic Management
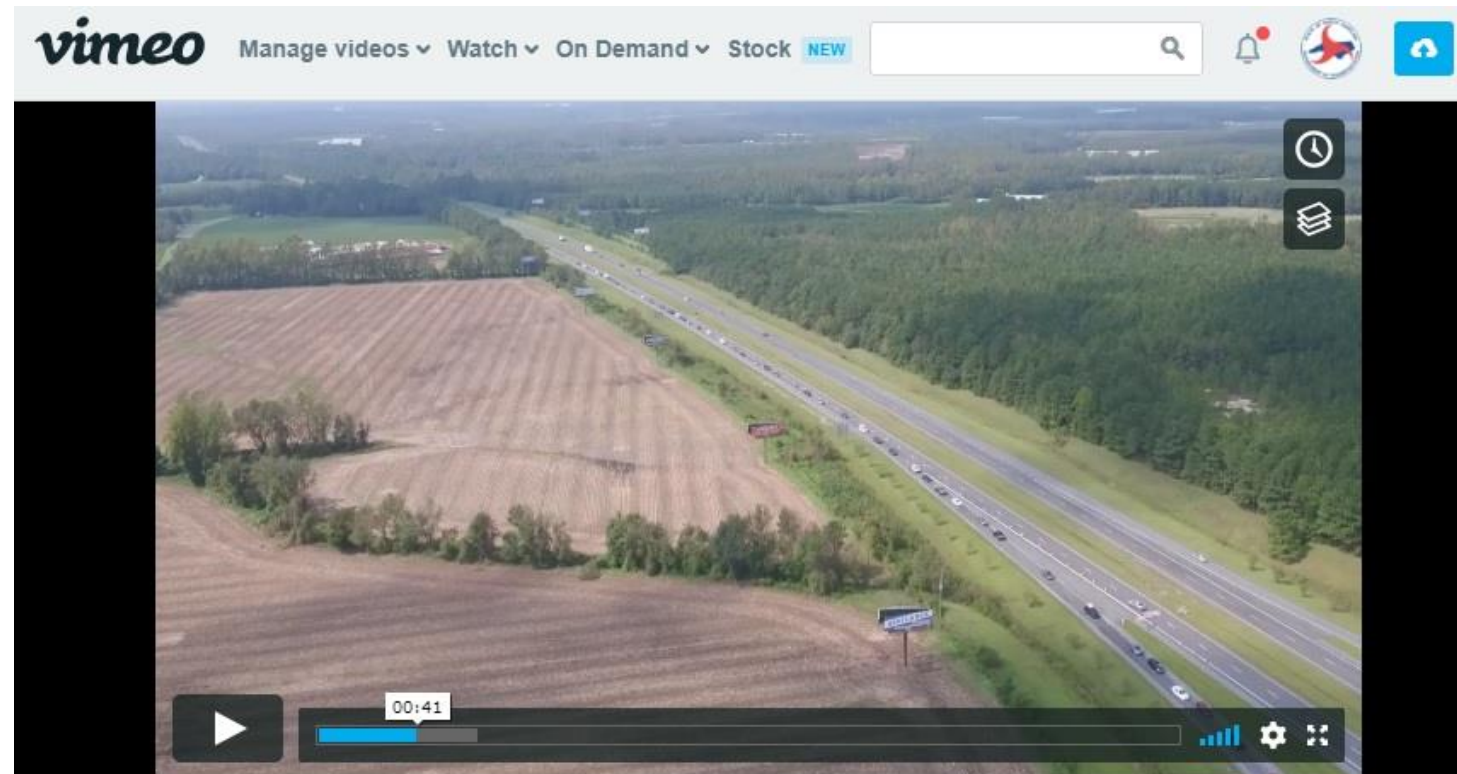
UAS Mission Workflow/Process

Dashboard,
Content Retrieval

NCDOT
Divisions /
Business Units

Stakeholders

Form

Reports, Mapping

Interactive Real Time Data
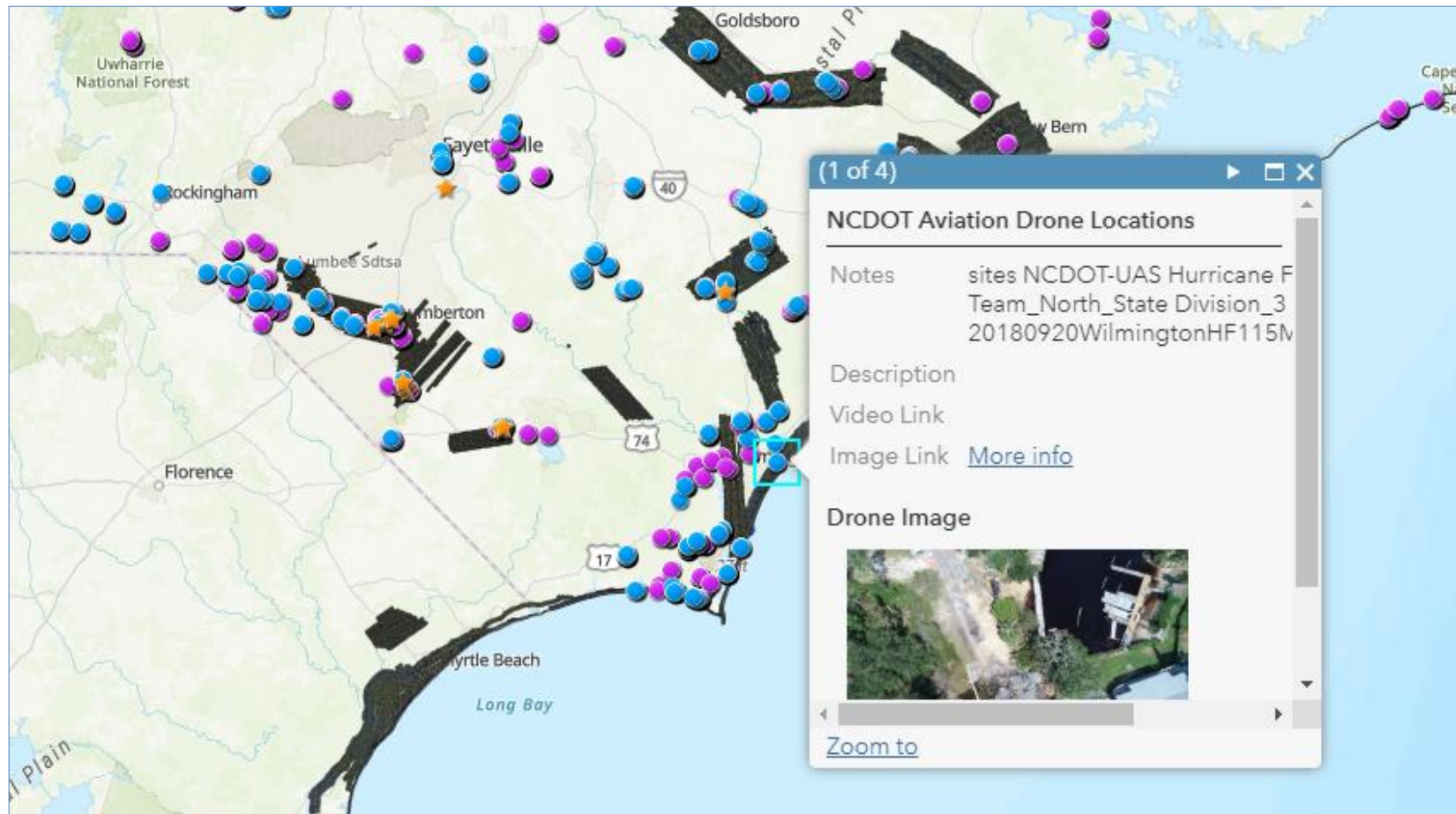
FAA UAS Integration Pilot Program

North Carolina Participation Goals

- **IMPROVE** the lives and economic well-being of North Carolinians through innovative UAS operational concepts throughout the state, with primary focus on **medical package delivery**
- **UNDERSTAND** the role of state and local government in localized UAS airspace management and new regulations
- **INFORM** development of federal guidelines and regulatory decisions on UAS operations nationwide
- **ENABLE** gateway to routine UAS operations for the public good

Planned NC Operations

Urban Example

Rural Example

ncdot.gov
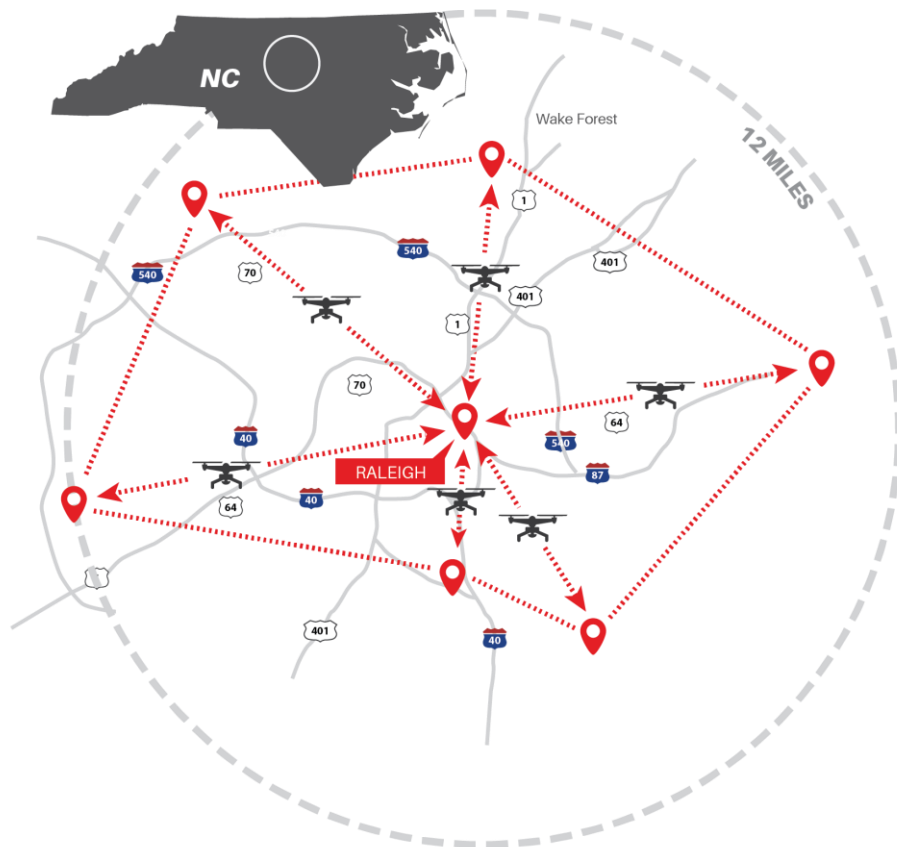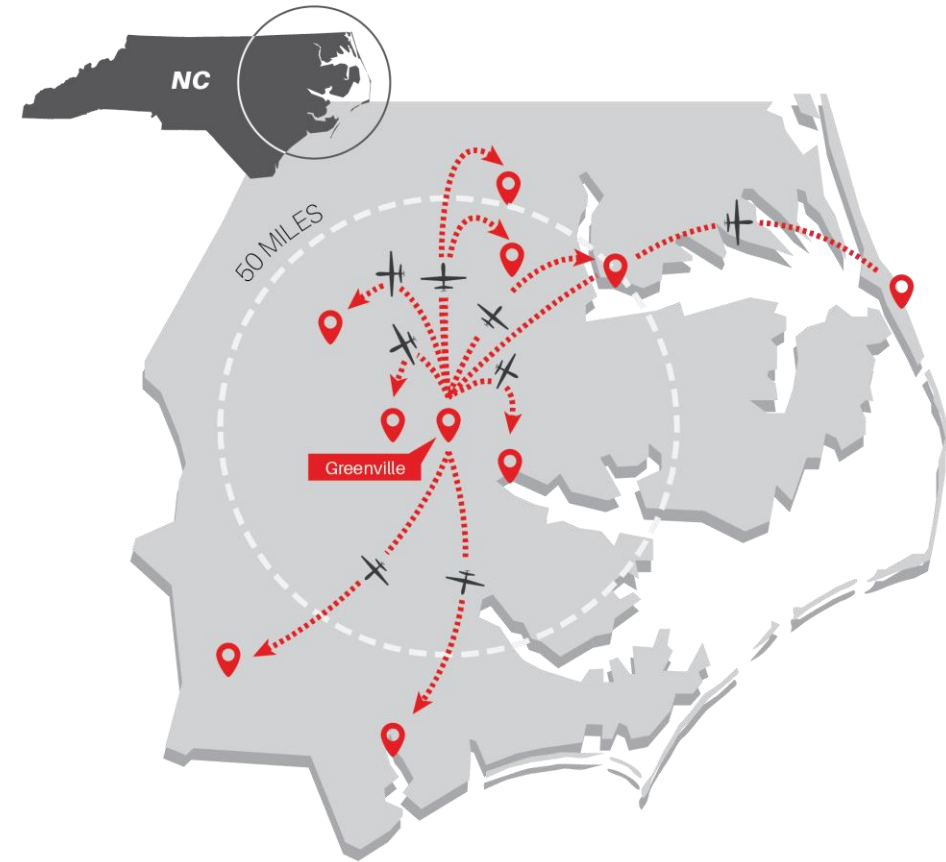
First Flight: Medical Package Delivery
Matternet at Wake Med | Aug. 29, 2018

Task:

Fly a lab sample from a medical surgical center to main WakeMed campus

Test:
- Package delivery
- Remote ID
- Air space management tool
- Flight over people

Next Flight: Oct. 2018
- Food delivery
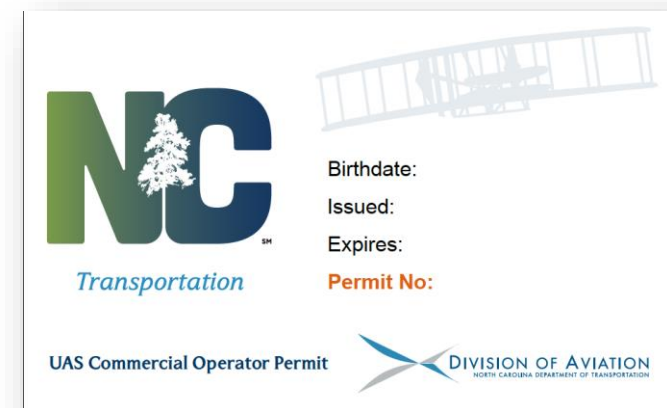- Suburban community
- 3-mile radius

UAS Operator Permits

Federal

- Pass a UAS knowledge test at FAA testing center and TSA background check
- Apply for Remote Pilot Certificate

North Carolina

- Pass NC UAS Knowledge test online
- Apply for commercial or government NC Operator Permit online
- www.ncdot.gov/aviation/uas

NCDOT UAS Resource Page

Publicly available online:

- List of NC General Statutes
- Best Practices
- UAS Research Reports
- UAS Related Links
- FAA Resources
- Law Enforcement Resources
- Emergency Management Resources
- Airport Operator Resources
- https://connect.ncdot.gov/resources/Pages/Aviation-Division-Resources.aspx
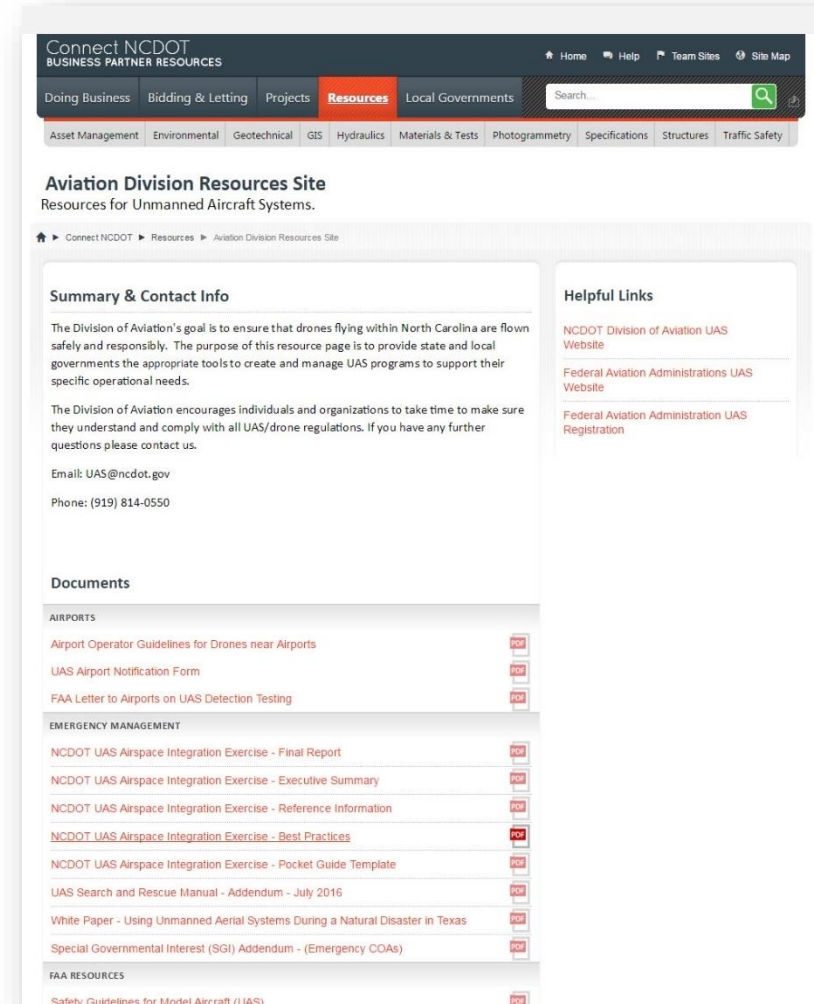
NCDOT UAS Program Office

Basil Yap

UAS Program Manager

NCDOT Division of Aviation

UAS@ncdot.gov | 919-814-0550

www.ncdot.gov/aviation/uas